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JRCS

JOHN REICH COLLECTORS SOCIETY
P.O. Box 3039 Centennial, CO 80161

The purpose of the John Reich Collectors Society (JRCS) is to encourage the study of numismatics, particularly United States gold and silver coins minted before the introduction of the Seated Liberty design, and to provide technical and educational information concerning such coins.

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The John Reich Journal is the official publication of the Society and is distributed to all members in good standing. Members are encouraged to submit any articles encouraging the study of numismatics and / or relating to early United States gold and silver coins to the editors. Especially needed are articles containing new information about die marriages, die states of published die marriages, attribution methods, collections, collectors, etc.

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1830 JR-3 terminal die state capped bust dime. Full obverse cud, retained cud reverse.
Ex: Dr. Charles D. Horning Collection.

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Editor's Comments

A new year has dawned and it seems the pandemic is beginning to loosen its grip on society. It will take a few years for historians to determine the extent of influence it has had on society in general. The effect it has had on our hobby is, most likely, evident to many of us now. The market for coins has experienced a significant upswing during the pandemic two years. I assume that many collectors during their confinement turned to their hobbies to alleviate their boredom. Online sales of coins skyrocketed as the in person conventions were cancelled. Dealers were denied their normal buying opportunities at shows and had to raise their offers to replenish inventories. Now that conventions are beginning to open to the public how will that change the dynamic? Only time will tell. In the meantime continue to enjoy your hobby and we hope to see many of you again at the upcoming Central States Numismatic Convention in Schaumburg and the ANA in Rosemont.

David Finkelstein and Christopher Pilliod have sent us the second installation of their research into the metallic content of our early coinage. This ground breaking research has been made possible with the advancement of quantitative compositional analysis. We are

able to learn things thought impossible years ago. What new opportunities to learn more about our favorite coins lie in the future? Who says we have learned almost everything there is to know about our coins? Stay tuned for more exciting discoveries in the future.

Please note that the Bust Dollar Census is the next to be published in our journal. The information on how to submit your contribution is included at the end of my notes. Please participate in this important survey.

I would also like to remind the membership that this is the 95th journal in our history. I am still planning on retiring as editor after the 100th issue. No one has come forward with an interest in the position of editor. Please consider volunteering for our organization. Or, will it be like my local newspaper where they are raising the price of the print issue to a level that most people will not pay forcing them to the online version. Is this the future of numismatic publications also?

The next issue of our journal is the pre-ANA due out in July. We need items to publish! Please send something as soon as possible for inclusion.

Early Dollar Census to be in Summer Issue of Journal | *By W. David Perkins*

The Early Dollar Census for silver dollars 1794 to 1803 by Die Marriage is planned for the Summer issue of the *John Reich Journal*.

I'm excited for the next Census. There are a number of new collectors, and the early dollar market is pretty strong these days. Some of the R-7 and R-8 die marriages have changed hands since the last Census.

I'd like those submitting a Census to get your data to me by May 1, 2022. You are welcome to send it in earlier, but you will need to remember to send updates as you add examples, upgrade, etc. Please include B and BB numbers and the grade. Dollars can be "raw" or graded (PCGS, NGC, or other).

You may send to me in electronic format (Excel, Word) at wdperki@attglobal.net or mail to me at: **W. David Perkins, P.O. Box 3039, Centennial, CO 80161-3039**

Please e-mail if you have any questions or call me at 303-902-5366.



Compositional Analysis of 1794 & 1795 Dated United States Silver Coins – Phase 2

By David Finkelstein & Christopher Pilliod

1.0 INTRODUCTION

Per the Mint and Coinage Act of April 2, 1792, silver coins were to contain 1485 parts of pure silver and 179 parts of pure copper alloy.¹ This equated to a standard of 1485 / 1664 or 89.24278% or 89.24% silver, and 10.75722% or 10.76% copper. Archival research, based on documents stored at the National Archives and the Library of Congress, reveals that under the leadership of the Mint's first and second Directors, David Rittenhouse and Henry William de Saussure respectively, most of the 1795 dated silver coins, and possibly some of the 1794 dated silver coins were produced to a standard of 90.00% silver and 10.00% copper alloy.² This would have been a violation of the Mint and Coinage Act.

Effective November 6, 1795, under the leadership of its third Director, Elias Boudinot, the Mint reverted to the mandated 89.24% silver and 10.76% copper standard.^{2,3} While seemingly a small

difference, this created a considerable amount of panic for Mint personnel. Two documents, written by two different Mint Directors, were directed to President Washington on this issue.^{2,4}

In March, 2015, the authors began a multi-phase project to determine if Mint personnel indeed attempted to or were actually able to produce silver coins to targets of 89.24% and 90.00% silver. Even in today's world of refining and melting, this is a very small difference. Up until 2015, advanced and highly quantitative compositional analysis of 1794 and 1795 dated U. S. silver coinage had never been performed.

Since there was no prior project to leverage from, the authors developed a relatively simple Phase 1 project plan employing standard analytical tools and methods to identify the compositional makeup of 1794 and 1795 dated silver coins.

From the onset, it was obvious that there would be a Phase 2 project, however it was unknown what that Phase 2 project would entail until all questions and issues were identified from the Phase 1 results. The Phase 1 project began in April, 2015 and was completed in August, 2018. A presentation was made at the 2018 ANA World's Fair of Money in Philadelphia, PA and an article detailing the overview, goals, approach, results and conclusions of the Phase 1 project were published in the June, 2019 (Volume 29 / Issue 2) issue of *The John Reich Journal*.

Phase 2 began in September, 2018. A presentation of the partial results was shared at the January, 2020 Florida United Numismatists (FUN) coin show. Since it is unknown when the Coronavirus pandemic will end and when COVID restrictions will be lifted, it was decided to close out Phase 2 work, and publish the results. Phase 3 will hopefully begin in Summer 2022.

1.1 1795 HALF DOLLAR EMISSION ORDER SEQUENCE

This article references the Tompkins emission order sequence.⁵ The emission order has been updated to include the presently unique 1795 O-133 (see Table 1). Note that the EO# is the die marriage sequence number within the emission order. It is not the Tompkins die marriage T number. All references to the Tompkins emission order sequence are heretofore notated TEOS.

EO#	Die Marriage	EO#	Die Marriage
1.	1795 O-119	17.	1795 O-109
2.	1795 O-121	18.	1795 O-108
3.	1795 O-117	19.	1795 O-128
4.	1795 O-120	20.	1795 O-111
5.	1795 O-133	21.	1795 O-112
6.	1795 O-122	22.	1795 O-110
7.	1795 O-123	23.	1795 O-126
8.	1795 O-129	24.	1795 O-127
9.	1795 O-130	25.	1795 O-104
10.	1795 O-131	26.	1795 O-105
11.	1795 O-115	27.	1795 O-102
12.	1795 O-116	28.	1795 O-132
13.	1795 O-124	29.	1795 O-101
14.	1795 O-125	30.	1795 O-103
15.	1795 O-113	31.	1795 O-106
16.	1795 O-114	32.	1795 O-107

*Table 1 – Updated 1795 Half Dollar Tompkins
Emission Order Sequence*

2.0 PHASE 1 - OVERVIEW (2015-2018)

During Phase 1, the authors employed traditional surface analytical techniques. This included the use of SEM (scanning electron microscopes) and XRF (X-ray fluorescence) analysis. These are non-destructive analytical techniques used to examine and determine the elemental composition of materials. The major benefit of SEM and XRF is that the testing is completely non-destructive with absolutely no evidence left on the coin. The downside is that they only analyze the near-surface composition, penetrating roughly only 1% of the thickness of the coin. For silver-copper alloys (with copper being impacted by environmental conditions) one finds copper normally depleted from the surface.

As such, XRF should only be used for qualitative conclusions.

To obtain accurate and highly quantifiable results, the authors reached out to leading chemists. Their recommendation was advanced ICP-AES (Inductively coupled plasma atomic emission spectroscopy) as a primary methodology. The downside to ICP analysis is that each coin would have to be destroyed to obtain samples for the analysis.

The authors would again like to thank the Eric P. Newman Numismatic Education Society and Heritage Auctions for funding and support during Phase 1. During Phase 1, compositional analyses were performed on one 1794 Cent, one 1795 Half Cent, one 1794 O-105 Half Dollar, and seven 1795 Half Dollars. The compositional analyses included XRF of both the surface and subsurface, and ICP-AES of the subsurface of the aforementioned ten coins.

2.1 PHASE 1 - PROOF OF CONCEPT

ICP-AES analysis is expensive. Laboratories charge by the number of samples, and the number of elements measured in each sample. It was therefore not economically feasible to measure the levels of all 118 elements of the Periodic Table in the ten coins that were subjected to ICP-AES analysis during Phase 1. Identification of the elements to measure during Phase 1 was determined during a Proof of Concept Phase:

1. XRF analysis of the surface of two 1795 Half Dollars identified silver, copper and

silicon. XRF analysis of the subsurface of these 1795 Half Dollars identified silver, copper, gold and lead, but no silicon.

2. ICP-AES analysis of four samples from the subsurface of the two 1795 Half Dollars was conducted by an Independent Laboratory. Fifteen different elements that are known to exist in silver copper alloys were measured. ICP-AES identified seven elements: silver, copper, gold, lead, arsenic, bismuth, and zinc. Silicon was not detected, and was likely from the environment.
3. It was “concluded” that silicon was present on the surface of the 1795 Half Dollars due to surface contamination during circulation in commerce.

PHASE 1 - SILVER BY BALANCE & CONCERNS

ICP-AES is extremely accurate for residual (low level) and trace (extremely low level) elements. As the concentration approaches and exceeds 10% by weight, the accuracy of ICP-AES can be marginal. Performing ICP-AES on the silver content was therefore not an acceptable option, and as such it was reported as a calculated value “by balance”, or 100 minus the total measured amounts of copper, gold, lead, arsenic, bismuth, and zinc (see Table 2).

The authors had four main concerns with the Phase 1 data:

1. While “by balance” is an accepted method of reporting in industry, the accuracy of reporting silver using mass balance becomes entirely dependent on the accuracy and completeness of the measured elements.

Date / DM	Sample	Phase 1 Ag% By Balance	Ag% Diff Between Samples	Phase 1 Cu% ICP-AES	Cu% Diff Between Samples
1794 O-105	1	88.67		11.01	
	2	88.87	0.20	10.81	0.20
1795 O-117	1	88.96		10.23	
	2	88.48	0.48	10.71	0.48
1795 O-122	1	90.00		9.20	
	2	90.02	0.02	9.18	0.02
1795 O-115	1	89.24		10.34	
	2	89.29	0.05	10.30	0.04
1795 O-116	1	89.83		9.87	
	2	89.87	0.04	9.82	0.05
1795 O-109	1	89.79		9.83	
	2	90.20	0.41	9.45	0.38
1795 O-110	1	90.97		8.70	
	2	91.31	0.34	8.35	0.35
1795 O-105	1	90.40		9.16	
	2	90.46	0.06	9.10	0.06

*Sample Testing Differences
Ordered by the TEOS*

2. In some cases, less than ideal agreement for the silver (Ag) by balance percentages between replicate ICP-AES analyses were observed on several of the 1795 Half Dollars. Whereas four of the seven 1795 Half Dollars showed an insignificant difference in silver measured by balance (0.06% or less), three 1795 Half Dollars measured a significant silver value difference of 0.34% or greater (see the “Ag% Diff Between Samples” column in Table 2).
 3. Having copper (Cu) values in the 10% by weight range approaches the maximum limit of ICP-AES. In discussions with the experienced chemists canvassed prior to ICP analysis, the consensus was “extreme care was needed at levels of 10% and above, and ICP should never be used for analysis above 15%.
 4. At these levels, the accuracy of ICP-AES is greatly influenced by weighing technique, the experience of the personnel involved, and care taken during the analysis. The silver by balance differences in replicate analyses for all eight Half Dollars analyzed in Phase 1 was directly related to the differences in the copper ICP-AES results (see the “Cu% Diff Between Samples” column in Table 2).
- The silver by balance values in Table 2 (see column “Phase 1 Ag% By Balance”)

indicate that the target silver content of the 1795 O-117 Half Dollars (the 3rd die marriage in the 1795 TEOS) was most likely 89.24%, the target silver content of the 1795 O-122 Half Dollars (the 6th die marriage in the 1795 TEOS) was most likely 90.00%, the target silver content of the 1795 O-115 Half Dollars (the 11th die marriage in the 1795 TEOS) was most likely 89.24%, and the target silver content of the 1795 O-116 Half Dollars (the 12th die marriage in the 1795 TEOS) was most likely 90.00%. It made no sense to the authors why Half Dollar production would have started in 1794 with a silver standard of 89.24%, then sometime in 1795 changed to 90.00%, then changed back to 89.24%, then finally reverted back to 90.00%.

These concerns resulted in the Phase 2 project goals: Utilizing more accurate chemical analysis techniques would increase the confidence in the chemical analysis data, thus providing a more accurate determination of when the Mint's silver standard changed from 89.24% to 90.00%.

3.0 THE PHASE 2 PROJECT (SEPTEMBER, 2018 – JANUARY, 2020)

In order to enhance confidence in the conclusions drawn from the data, the authors engaged with analytical chemists at Carpenter Technology (Chris Pilliod's employer) in Reading, Pennsylvania. In September, 2018 the question was asked "is there a method to more accurately measure the content of silver?"

Why was this question asked to the analytical chemistry experts at Carpenter Technology? Carpenter's Chemical

Laboratory creates certified alloy standards for worldwide users. It is both an ISO/IEC (International Organization for Standardization / International Electro-technical Commission) 17025 and NADCAP (National Aerospace and Defense Contractors Accreditation Program) accredited chemical laboratory. In addition, three of the senior lab chemists at Carpenter had a combined 110 years experience in alloy analysis.

The consensus was titration is the premier tool for silver based alloy analysis. Titration offers a direct measurement of silver, and does not rely on calculation by balance.

The labs at Carpenter Technology agreed to perform silver titration on the eight Bust Half Dollars analyzed during Phase 1. At the same time, the most senior chemist at Carpenter agreed to analyze a number of Half Dollars using enhanced ICP-AES procedures developed internally. This was done to confirm the titration, as well as the previous Independent Laboratory results.

3.1 PHASE 2 - PHASE 1 HALF DOLLARS REMEASURED VIA TITRATION

Whereas the silver percentages in the 1794 O-105 and seven 1795 Half Dollars analyzed during Phase 1 were calculated by balance, during Phase 2 the silver percentages in these eight Half Dollars were measured via titration and a direct measurement was reported. Had the Phase 1 silver by balance values equaled the Phase 2 silver titration values, then the Phase 1 and Phase 2 silver percentages, statistics, and conclusions would be the same. This was not our expectation, and this did not occur.

3.2 PHASE 2 - SILVER TITRATION RESULTS

In general, the results of any chemical analysis are affected by how the samples are prepared, the state of the equipment used to perform the analysis, the standards employed, and the expertise and experience of the people that perform the analysis. Based on the procedures, standards, expertise, experience, and certifications of Carpenter Technology, the authors approached the Phase 2 silver titration results with great confidence, realizing the results to be more accurate and more reliable than the Phase 1 silver by balance results.

During Phase 2, silver titration was performed in replicate of each of the eight Half Dollars that were analyzed during Phase 1 (see Table 3). Replicate chemical analyses on the same Half Dollar during Phase 1 resulted in an average silver by balance difference of 0.2625%. Replicate chemical analyses on the same Half Dollar during Phase 2 resulted in an average silver titration difference of 0.045%. As such, titration offered six times better agreement between the two iterations, allowing the authors greater confidence in the method and conclusions drawn.

The Phase 1 silver by balance results indicated that the 1795 O-115 Half Dollar was struck to an 89.24% silver standard. This raised the following concern:

1. Did the Mint strike 1794 Half Dollars to a target of 89.24% silver, then in 1795 the target was changed to 90.00%, then changed back to 89.24%, then finally reverted back to 90.00%, or

2. does the Tompkins 1795 Emission Order Sequence have the O-115 die marriage out of order in the sequence?

This concern was eliminated per the more accurate and more reliable Phase 2 silver titration data. The silver titration values in Table 3 (see column “Phase 2 Ag% Titration”) indicate that the target silver content of the 1795 O-115 Half Dollars was most likely 90.00% (and not 89.24%), and the target silver content of all 1795 Half Dollars struck during and after the 1795 O-122 was most likely 90.00%.

Note that fifteen of the sixteen measurements via titration had a greater silver percentage than the Phase 1 silver by balance percentage (see the “Phase 2 Minus Phase 1 Difference” column in Table 3). Since the silver percentages were higher, the combined copper, gold, lead, arsenic, bismuth, and zinc percentages had to be lower. The question was of course, which elements had lower ICP-AES percentages?

3.3 PHASE 2 – RESIDUAL & TRACE ELEMENT RESULTS

Carpenter Technology performed ICP-AES analyses on samples from the subsurface of the 1794 O-105, 1795 O-117, and 1795 O-115 Half Dollars as a Proof of Concept (see Table 4). Different subsurface samples from these Half Dollars were analyzed by an independent laboratory during Phase 1. The Proof of Concept was done to determine if there were any significant differences between the Phase 1 and Phase 2 ICP-AES results. Note that Carpenter Technology’s ICP-AES analyses measured only for copper, gold, and lead. Also note that the Phase 2 Other % was calculated as follows:

100 % - Phase 2 Ag (silver) titration % – Phase 2 Cu (copper) ICP-AES % – Phase 2 Au (gold) ICP-AES % – Phase 2 Pb (lead) ICP-AES %

Date / DM	Sample	Phase 2 Ag% Titration	Phase 2 Sample Difference	Phase 1 Ag% By Balance	Phase 2 Minus Phase 1 Difference	Ag Target %
1794 O-105	1	89.61		88.67	0.94	89.24
	2	89.59	0.02	88.87	0.72	89.24
1795 O-117	1	89.32		88.96	0.36	89.24
	2	89.36	0.04	88.48	0.88	89.24
1795 O-122	1	90.36		90.00	0.36	90.00
	2	90.35	0.01	90.02	0.33	90.00
1795 O-115	1	90.12		89.24	0.88	?
	2	90.08	0.04	89.29	0.79	?
1795 O-116	1	90.76		89.83	0.93	90.00
	2	90.74	0.02	89.87	0.87	90.00
1795 O-109	1	90.71		89.79	0.92	90.00
	2	90.72	0.01	90.20	0.52	90.00
1795 O-110	1	92.00		90.97	1.03	90.00
	2	91.95	0.05	91.31	0.64	90.00
1795 O-105	1	90.37		90.40	-0.03	90.00
	2	90.54	0.17	90.46	0.08	90.00

Table 3 – Phase 2 Subsurface Silver (Ag) % Titration .vs. Phase 1 Subsurface Silver (Ag) % By Balance – Ordered by the TEOS

Date / DM	Sam	Phase 2 Cu%	Phase 1 Cu%	Phase 2 Au%	Phase 1 Au%	Phase 2 Pb%	Phase 1 Pb%	Phase 2 Other%	Phase 1 Other%
1794 O-105	1	9.92	11.01	0.12	0.12	0.21	0.17	0.14	0.03
	2	9.96	10.81	0.12	0.12	0.21	0.17	0.12	0.03
1795 O-117	1	9.58	10.23	0.31	0.36	0.28	0.43	0.51	0.02
	2	9.59	10.71	0.31	0.34	0.25	0.45	0.49	0.02
1795 O-115	1	9.35	10.34	0.19	0.20	0.21	0.19	0.13	0.03
	2	9.39	10.30	0.18	0.20	0.21	0.18	0.14	0.03

Table 4 – Phase 2 .vs. Phase 1 Subsurface ICP-AES Compositional Analysis: Copper (Cu), Gold (Au), Lead (Pb) & Other – Ordered by the TEOS

3.4 PHASE 2 – CONCLUSIONS

1. Phase 2 chemical analyses identified overall higher levels of silver and lower levels of copper in the 1794 and 1795 Half Dollars as compared to Phase 1.
2. Silver titration results indicate that the 1794 O-105 and 1795 O-117 Half Dollars were struck to an 89.24% silver standard. The authors have therefore concluded that the Mint targeted all 1794 and the 1795 O-119, O-121 and O-117 Half Dollars to a 89.24% silver / 10.76% copper standard. This complied with the Congressional standard as defined within the Mint and Coinage Act of April 2, 1792.
3. Silver titration results indicate that sometime during or after the striking of the 1795 O-117 and prior to or during the striking of the 1795 O-122 Half Dollars, the Mint most likely increased the target composition of the 1795 Half Dollars to a 90.00% silver / 10.00% copper standard. This was a violation of the Mint and Coinage Act.

3.5 PHASE 2 – QUESTIONS RE ICP-AES RESULTS & PHASE 3 OBJECTIVES

Phase 2 ICP-AES analysis identified that the copper percentages were significantly lower, the residual gold percentages were relatively the same, the residual lead were also relatively the same (except for the 1795 O-117 Half Dollar), and the other trace elements (arsenic, bismuth and zinc) were significantly different (see Table 4) when compared to the Phase 1 data. This raised some interesting questions:

1. Why is there significant disagreement between the Phase 1 and Phase 2 ICP-AES results for the 1795 O-117 Half Dollar? To validate the Phase 2 ICP-AES results, the authors will re-run ICP-AES analysis on the O-117 in hand during Phase 3. In addition, an attempt will be made to obtain a second 1795 O-117 Half Dollar so ICP-AES analyses can be performed on it.
2. Are there one or more residual or trace elements present in the 1794 and/or 1795 Half Dollars that were not identified during Phase 1? ICP-AES analyses during Phase 3 will measure for other elements that are found in nature with silver. These elements may possibly include nickel and antimony.

3.6 ADDITIONAL PHASE 3 OBJECTIVES

1. Note that per the 1795 TEOS, there are two die marriages in-between the 1795 O-117 and 1795 O-122 die marriages. These die marriages are the very scarce 1795 O-120 R.6 and the unique 1795 O-133. Since silver titration has identified that the 1795 O-117 analyzed during Phase 2 was most likely struck to a 90.00% silver target and the 1795 O-122 analyzed during Phase 2 was most likely struck to an 89.24% silver target, the authors would like to subject a damaged 1795 O-120 Half Dollar to silver titration to determine if its silver target was 89.24% or 90.00%. Unfortunately, the likelihood of locating one is extremely low.
2. On November 6, 1795, Mint Director Elias Boudinot instructed assayer Albion Cox to “be particularly careful in future, to see that the precious Metals issued for

coining, be made precisely agreeably to the standard”.² Since no Half Dollars were transferred from Chief Coiner Henry Voight to Treasurer of the Mint Dr. Nicholas Way after June 5, 1795 and prior to February 28, 1797, the authors have assumed that all 1795 Half Dollars struck from the 1795 O-122 (the 6th die marriage in the 1795 TEOS) through the 1795 O-107 (the 32nd and last die marriage in the 1795 TEOS) were struck to a 90.00% silver standard. The authors will attempt to obtain a damaged 1795 O-107 Half Dollar for silver titration to determine if it was indeed struck to a 90.00% silver standard.

3. ICP-AES analysis will be performed on the five 1795 Half Dollars that were analyzed during Phase 1, but not analyzed during Phase 2.

3.7 DID THE MINT INTENTIONALLY AIM ABOVE 89.24% SILVER?

Note that for the 1794 O-105 and 1795 O-117 Half Dollars, the measured silver titration values were all above the standard target of 89.24%. The authors theorize that this may have been a result of the newly established Mint’s conservative measures to insure confidence in a new nation’s new monetary system. Did the Mint intentionally error on the high end of silver to avoid any panic that other empires and nations previously experienced? We believe so.

Since the authors believe that the Mint targeted all 1794 and the 1795 O-119, O-121 and O-117 Half Dollars (the 1st, 2nd and 3rd Half Dollars in the 1795 TEOS) to an 89.24% silver standard, an attempt will be made to obtain damaged

1795 O-119, 1795 O-121 and 1795 O-117 Half Dollars. Silver titration on these Half Dollars will hopefully confirm this theory.

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"Gobrecht" Bust Half Dollars (Hidden Treasures)

By Jim Koenings

What are the "Rarest" U.S. Half Dollars? There are actually two die marriages. 1839-O GR-2 and 1839-O GR-3

In May 2020, I purchased what I believe is the 2nd known 1839-O GR-2 on eBay. Below is a photo of the reverse of my coin:

When Dick Graham had his book "A Registry of Die Varieties of Reeded Edge Half Dollars 1836-1839" printed in 2012, there were 1 of each known.



Since August of 2019, I have been emailing interested collectors, on a monthly basis, information and large photos on the "38 Most Common Die Marriages of Reeded Edge Half Dollars". After covering all of the common 1837 die marriages, I will be sending Newsletter #35 on March 15, 2022. It will provide large photos and information on the 1838 GR-13 die marriage along with other interesting information about "Hidden Treasures" and more.

Currently there are about 11 Liberty Seated Coin Club members and many JRCS members along with other collectors that purchased my book "Reeded Edge Half Dollars 1836 to 1839, R-4 to R-8 Die Varieties". I had 100 copies printed in February 2018 and the book was sold out by December 2019.

Since 1839-O GR-2 and 1839-O GR-5 both share the same obverse (my coin had to be one of the choices), I sent a "Special Newsletter" and asked my readers to vote which die marriage they thought the above coin was based on photos of the reverses of 1839-O GR-2 and 1839-O GR-5 that I provided them. Below are the results of that survey:

- 6 of my readers thought it was 1839-O GR-2
- 6 of my readers thought it was 1839-O GR-5
- 2 others were undecided

Those decisions were based on seeing the reverses only.

I have been maintaining photos on every 1839-O GR-5 that sold on eBay or by a major coin auction firm since 2010. Thanks to the help of my readers, I now have records of 33 specimens of 1839-O GR-5. When I compared the obverse of my coin to the only known 1839-O GR-2, I found 2 die breaks that appeared on every GR-2 and GR-5 specimen. I also found out that my coin was the 2nd Earliest Die Stage of all of the specimens (all others had several die breaks). I can provide a photo of the earliest GR-5 die stage.

If you would like to receive these free Newsletters on a monthly basis, simply send me your name and email address to: bustcoin1@verizon.net

In the next year, I plan to cover the 2 remaining 1838 die marriages after 1838 GR-13, (5) of the most common 1839 die marriages and the 1839-O GR-1 die marriage.

Every month that I cover one of the "38 Most Common", I discover other "Hidden Treasures" so take advantage and join my list of interested collectors.

Below are photos of the "discovery piece" 1839-O GR-2 reverse and a photo of my 1839-O GR-5 specimen. The differences are very obvious. Please compare them to the photo of what I believe is the 2nd known 1839-O GR-2, shown above.



*1839-O GR-2 PCGS VF35 Reverse
(Photo Courtesy of PCGS Registry)*

This was the only known specimen prior to my discovery. You should notice the long talon over H in HALF. You should also notice the long, slightly flatter on the top, dentils and how close they are to the legends.



1839-O GR-5 PCGS XF40 Reverse

Currently, the above specimen is rated R-4+ (81 to 120 known). Notice the position of the talon over H in HALF. Also notice the short, rounded dentils and their distance from the Legends.

Please compare all 3 reverses and see what you think. Obviously wear becomes a big factor. If you have any questions, please contact me at bustcoin1@verizon.net.

I believe lack of published information is the reason additional 1839-O GR-2's and GR-3's haven't been discovered.

Happy Hunting!

Graves' Twist of Fate

By Jeff Reichenberger

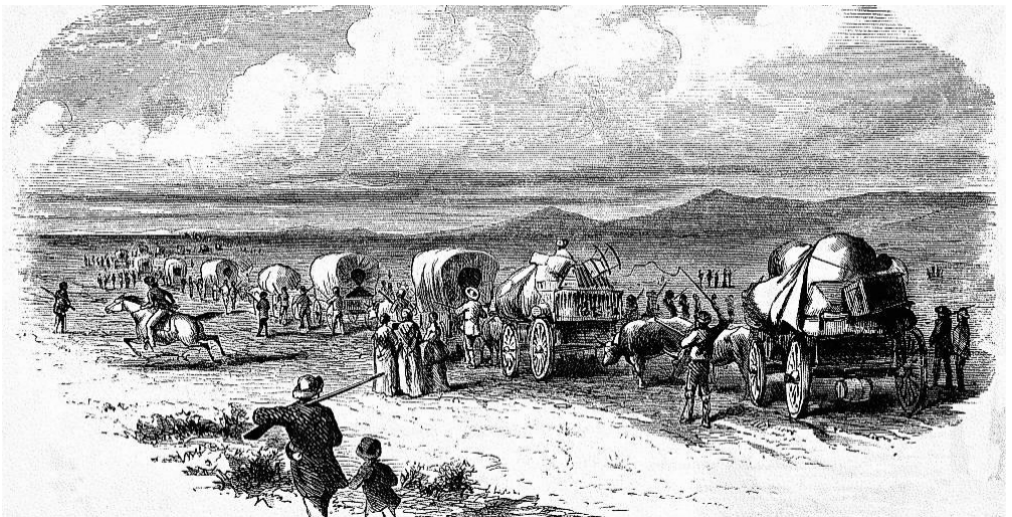
1891

In the morning hours of May 14, 1891, self-described miner/mineralist Edward Reynolds was poking around a lake in the California highlands when he spotted a silver coin peeking through the dirt. Digging a bit deeper he unearthed another dozen coins. Forcing his hands into the dirt he could feel more below. He covered the spot and went back to town to solicit the help of a friend and return to the dig.

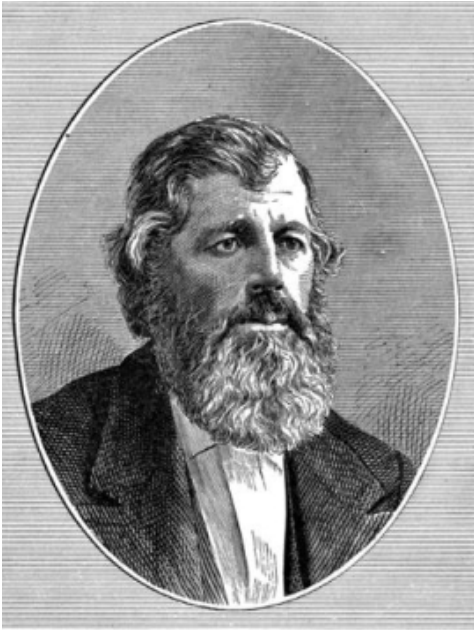
1846

On April 2, 1846, Franklin and Elizabeth Graves sold their Illinois farm. Economic factors persuaded them to sell and move to the west coast – a land of promise. The 500-acre farm sold for \$1500.00 (roughly \$50,000 today). The bank payment consisted of coins only, mostly large silver coins, and some gold.

Mr. and Mrs. Graves and their nine children left Illinois on April 12, 1846, with three covered wagons and a dozen oxen.



Emigrant wagon trains heading west in the mid-1800's. wpclipart.com – public domain



Franklin Ward Graves 1789 – 1846
Geni.com

Apparently, Franklin felt some trepidation about transporting the family life savings across the country, so the coinage was divided and cached among the wagons. One ingenious method he used to conceal some of the money was to fashion wooden support cleats, perhaps four feet long, four inches wide, and six inches in depth – drill holes in them sufficient to hold stacks of coins, then attach them up underneath one of the wagons.

1891

Reynolds and his friend Amos returned to the dig site in the late afternoon on May 14th. By nightfall they had uncovered well over a hundred large silver coins. In darkness they covered the site and returned to town to count the treasure.

1846

The Graves family fell in line with dozens of wagon trains carrying hundreds of emigrants across the great plains. They reached a gradual fork in the trail, near what would now be considered central Wyoming. To the north, the well-traveled trail through Idaho and on to Oregon. To the south, the less-traveled trail through Wyoming to California, said to be the faster route. It was already August, and feeling behind schedule, Graves chose to take the faster route to the south.

1891

The morning of May 15 found Reynolds at the offices of the local newspaper to report the find, seek witnesses and a photographer. A group of seven people traveled back to the site. They spent some time digging around the area and discovered another smaller cache of coins. Subsequently, several attempts were made, but nothing more was found.

1846

As fate would have it, on August 10th the Graves wagons caught up with a larger party that had been struggling in the canyons of the Wasatch mountains in what is now northern Utah. The parties decided to join forces for the duration of the trip. The large party was led by a man named George Donner.

The tragedy of the Donner Party needs no further discussion here, but we will keep a numismatic eye on the Graves family.

The emigrants didn't make it over the Sierra Nevada Mountain Range before winter. By early November, they were



*Edward Reynolds and Amos Lane inspect coins at the site of the find.
(Staged photo attributed to C. F. McGlashan) Charles Fayette McGlashan papers, BANC MSS C-B 570, The Bancroft Library,
University of California, Berkeley. Folders 104-105*

stuck, exposed, and starving. They hastily built shelters. The Graves' family occupied a cabin near Truckee Lake.

1891

Among the witnesses of the hoard site was Charles McGlashan, who had been the owner and editor of the Truckee Republican newspaper at the time of the Donner ordeal. He had extensively interviewed many survivors and had become somewhat of an authority and written a book on the subject. He knew the Graves story and offered his incite. Back at the newspaper offices on the evening of May 15, an inventory of the hoard had begun.

1846

Franklin Graves made several failed attempts to get over the mountain pass to bring back rescue teams. On one occasion in mid-December, he fashioned snowshoes out of oxbows and hide strips. Fifteen people joined the trek, but the relentless snow and blizzard conditions beat them down. Franklin Graves died in the mountains on Christmas Eve, 1846, with his two eldest daughters by his side. Ultimately, on January 18, 1847, those two daughters and five others made it safely to a California ranch at the edge of the Sacramento Valley.



A rescue team descends on the snow-buried cabins. NPR.org – public domain illustration – artist unknown

Back at the lake camp, Elizabeth Graves did all she could to keep her other seven children alive, holding the hope that Franklin would bring back a relief team. It wouldn't be until mid-February that a relief team finally arrived at the lake camp. They could only see the chimney structures above the snow and tunnels to the cabin entries.

1891

The type-written inventory list includes 118 Dollar size silver coins and 74 Half Dollar size silver coins. The 'dollar' coins consist of fifty-six 5 Franc pieces, sixty Spanish Dominion 8 Reale pieces, and one Thaler of Saxony. The 'half dollar' coins include seventy-two U. S. Half Dollars, and two Spanish 4 Reale pieces. A total of 192 coins.

1847

The first week of March brought a bit of a thaw, so a relief team gathered

the remaining lake campers to attempt another hike over the summit. This group included fourteen children and three adults, Mrs. Graves and her family among them. In their weakened state, most of the children had to be carried by their parent or members of the relief team. These men had helped the survivors gather their scant possessions for the trek. They helped Elizabeth remove the coins from snow-packed wagon cleat, however, she did not know these men and had overheard them joking about who would get her coins. This money was to be the foundation on which the family would live in the new land, so she insisted on carrying the heavy load herself.

On March 3rd they set out only making it about 2 miles along the north side of the lake. The next day, realizing she could not carry the heavy coins and her one-year-old daughter, she lagged behind the others, found a place where the earth had come

1891

The hoard is a microcosm of the economics of America at the time – a mixed bag of money mostly originating from Spain and France along with a percentage from other countries, including the United States – this arrangement continued until the Act

1847

In the end, six Graves children survived past 1847, three died from the ordeal along with their parents.

Description of Money found at Donner Lake, May 14th.		14th.
1891, by Edward Reynolds, and dug up by him and Amos Lane on- said day:		
5 Francs, date 1800✓	Gr. Spanish, 1821, U. S. 1/2	
" " 1812✓	1810.	39
" " 1838✓	1812.	33
" " 1834✓	1805.	30, 40
" " 1839✓	1810.	30
1833✓		38 37
1833✓	Re. Bolivia. 1838.	29 36
1812✓	Gr. Argentine. 1833.	28 36
1812✓	5 Marks, Saxony 1835.	32 41
1808✓		25 43
1838✓	Mexican Dollar. 1834✓	20
1812✓	1839✓	40
1811✓	1829✓	28
1831✓	1845.	18
1812✓	1840.	35
1808✓	1834✓	17
1832✓	1844.	34
1840✓	1842✓	39
1844✓	1838✓	37
1843✓	1843✓	36
1831✓	1837.	25
1812✓	1830.	37
1812✓	1835.	32
1811✓	1827.	18
1808.	1840.	28
1834✓	1838✓	29
1801✓	1832.	26
1841✓	1838.	30
1832✓	1834.	32
1812✓	1808.	29
1809.	1840.	35
1841✓	1833.	36
1812✓	1834.	29
1837✓	1836.	27
1812✓	1842.	39
1824✓	1838.	23
1835✓	1839.	33
1809✓	1831.	38
1822✓	1837.	30
1829✓	1831.	30
1822✓	1841.	41
1823✓	1841.	29
1814✓	1837.	43
1819✓	1838✓	47
1827✓	1841.	42
1828✓	1845.	15
1820✓	1845.	13
1825✓	1832.	42
1818✓	1841.	22
1807✓	1841.	22
1814✓	1843.	41
1818✓	1839.	39
" Republic. Jan. 8.	1838.	32
" " 11.	1832✓	42
" " 11.	1830.	24
	1828.	29
	1835.	16
	1842.	24
	183-	34

List of Monies found at Donner Lake May 16 1891. by Edward Reynolds, Ames Lane, Stewart McKay, C. F. McGlashan, Mona G. McGlashan, and Earl McGlashan.

Mexican Dollar 1844.
1833
183-
1834

5 Frank 1827.

1 Dollar, Louis Phillippe, date side being covered with earth, given by Mr. Reynolds and Mr. Lane to Mrs. N. G. McGlashan.

U. S. half-dollars: 1810.
1830.
1831.
1826.
1832.
1833.

Total: One hundred and eighteen dollars; in dollars.
Thirty-seven dollars in half-dollars.

Dates noted in presence of H. A. Mason, editor of Truckee Republican.

"Graves Coin List", Charles Fayette McGlashan papers, BANC MSS C-B 570, The Bancroft Library, University of California, Berkeley. Folders 104-105

1891

Distribution of the coins differs slightly in varying accounts, but some went to the finders, and some went to the Graves family. A few coins are known to still be held by Graves descendants, and a few are in museums.

1993

In May of 1993, the Graves descendants held a family reunion at the site of the ranch where survivors first gathered nearly 150 years earlier. They talked about the treasured coins, which they cherish to this day.

HOARD ANALYSIS

When analyzing the Graves hoard it must be considered that the coins found are only about a tenth of the dollar value of the total sale of the farm. Money found = \$155.00, Purchase price of the farm = \$1500.00. So, although we will never know the total breakdown of the bank transaction, the one-tenth sampling we have is a representation that mirrors what is generally known about the way coinage and commerce worked in the first half of the 19th century in the United States – foreign specie was accepted and used extensively while the fledgling U.S. Mint was still getting a foothold. This took much longer than expected; 64 years from the opening of the mint in 1793, to the act that ended legal status of foreign specie in 1857.

U. S. STANDARDS

The United States authorized silver dollars and half dollars by an act of Congress on April 2, 1792. Weight and fineness were established as follows: For Dollars, 26.96 grams, 416 grains and .8924 fine. For Half Dollars, 13.48 grams, 208 grains and .8924 fine. These standards were changed slightly by law on January 18, 1837: For Dollars, 412.5 grains and .900 fine. For Half Dollars: 206.25 grains and .900 fine.

This initial act of Congress was largely influenced by the standards set forth by the Spanish Milled Dollar, which was well-established worldwide. In November 1792, the House requested assays of the coins of France, England, Spain, and Spanish colonies. Based on these assay results, the first federal legislation establishing the value of foreign coins as legal tender, “An Act regulating foreign coins, and for other purposes”, came into law on February 9, 1793.

In a rudimentary nutshell, these acts were the basis for guidelines regarding foreign coinage used in the United States. I use the word ‘guidelines’ because legislative acts and proposals concerning coining and banking ran rampant during these years and there remained gray areas regarding exact weight and fineness specifications of foreign specie, as far as the populace, banks, and merchants were concerned. In general, large denomination silver coinage from Spain/Spanish Colonies, and France were readily accepted in day-to-day commerce during the years 1793 – 1857.

COINAGE REPRESENTED IN THE GRAVES HOARD

Fifty-six 5 Franc pieces ranging in dates from 1795 to 1844. The 5 Franc piece was the only dollar-size foreign legal tender coin that was rated less than 100 cents. The coin was still .900 fine silver, but slightly smaller and lighter than standard, coming in at 25 grams and 37mm. The U.S. rated it at 93 cents. There were six different types of the 5 Franc coin in the Graves Hoard.

Republic Issue 1795 – 1802



1816 – 1824



1806 – 1807



1825 – 1829



1808 – 1814



1831 – 1844



Sixty Spanish Dominion 8 Reale pieces (Spain, Mexico, Argentina, Bolivia) ranging in dates from 1805 – 1844. The Spanish dollars were by far the most prolific coins produced and used in the world. They maintained a high standard of size, weight, and fineness – 39mm, 27 grams, .900 fine – throughout their far-reaching colonial mints.

Spanish Dominion 1791 – 1808 Carolus IIIII



Bolivia (8 Sueldos) 1827 – 1840



Mexico 1811 – 1822 Ferdinand VII



Argentina (provinces) 1826 – 1837



Mexico 1824 – 1856



One German States Thaler of Saxony – the oddball of the hoard. This coin is slightly heavier in weight, yet smaller in size, and lesser in fineness. Had the U.S. assayed such a coin, it likely would have garnered less than 100 cents, but it probably passed as a dollar in general circulation. It was erroneously listed as a 5 Mark piece on the original inventory.

Thaler of Saxony, German States 1829 – 1836



Two Spanish 4 Reales (1800 & 1805) and seventy-two U.S. Half Dollars ranging in dates from 1810 to 1843. The Spanish 4 Reales are rare by comparison to the 8 Reales but like its larger counterpart, the 4 Reale coins met the weight and fineness standard, .896 fine, 13.5 grams, 32mm.

Spanish Dominion 4 Reales 1791 – 1809



Of the **seventy-two U.S. Half Dollars** in the hoard, fifty-two are of the Capped Bust Variety. Capped Bust Half Dollars were minted in abundance compared to all other denominations being produced by the U.S. Mint during the time period 1807-1836. They were the largest silver coin minted

in quantity, thus became the commerce workhorse for the U.S. economy, alongside the foreign coinage we've referred to.

In "Bust Half Fever" (Money Tree Press, 1995), Edgar Souders states:

Capped Bust Half Dollars did not circulate to any large degree but instead were mostly stored in the depths of bank vaults. Once in these vaults their primary use was for large bank-to-bank transactions... Banks preferred the largest silver coins available for large transactions... In addition, state banks were required to have specie on hand to back up their paper money issues. To fill this need, many of the banks used Capped Bust Halves that were stored in their vaults in heavy canvas bags.

It is no surprise then, that much of the Graves hoard, which would have been considered a large bank transaction, was made up of U.S. Capped Bust Half Dollars.

There are four halves dated 1836. There is no way of knowing if these are the Lettered Edge or Reeded Edge varieties – but most likely Lettered Edge based on the low mintage of the Reeded coins that year. There are two halves dated 1838 and three dated 1839. There is no way of knowing if any of these had a New Orleans mint mark, or if the three 1839's were Bust or Seated types. There are seven halves dated in the teens, twenty dated in the twenties, thirty-four dated in the thirties, and eleven dated in the forties. It is interesting to note that the low mintage 1815/2 Capped Bust Half was represented.

The Capped Bust Reeded edge and Liberty Seated types were made slightly smaller, weighing 13.36 grams, and measuring

30mm and 30.6mm respectively. They remained .900 fine.

U.S. Capped Bust Half Dollar 1807 – 1836



*U.S. Capped Bust Reeded Edge Half Dollar
1836 – 1837 (50 cents)*



*U.S. Capped Bust Reeded Edge Half Dollar
1838 – 1839 (HALF DOL.)*



U.S. Liberty Seated Half Dollar 1839 – 1891



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Coin Image credits

1. (5 franc republic issue) NGC
2. (5 franc 1806-07) Numiscorner.com
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14. (Capped 1807-36) PCGS coinfacts
15. (Reeded 1836-37) PCGS coinfacts
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Heat Treatment of Coin Dies

By Nick Pottschmidt

One of the beneficial attributes of steel is that it can be heat treated to obtain a wide variety of properties for many different applications. One of these applications is for use as coin dies. I have seen terms like “hardening,” “annealing,” and “quenching” used to discuss coin dies in numismatic publications before, and after working with this subject for two and a half years, I have

learned quite a bit about how the various heat treatment processes work. I thought it would be helpful to share what occurs when heat treating coin dies like the 1805 B-2 quarter die and 1806 O-123 half dollar die shown in **Figure 1**. Both images are from the American Numismatic Society (ANS); see ANS identifiers 1923.33.2 and 1949.35.3, respectively.



Figure 1: 1805 B-2 quarter obverse die (left) and 1806 O-123 half dollar obverse die (right) from the ANS collection. Note the large die break present on the left side of the 1805 B-2 quarter die. This manifested itself as a cud on later die state coins.

To start out, steel is characterized as an iron-carbon alloy. Other alloying elements (e.g., manganese, chromium, nickel, molybdenum, etc.) are added to achieve a wide array of properties (e.g., strength, hardness, toughness, corrosion resistance, machinability, etc.). At room temperature, steel is generally made up of two phases with different amounts of carbon atoms interspersed amongst the iron atoms: **ferrite** (extremely low carbon content) and **cementite** (relatively high carbon content). At high temperatures, though, a third phase is formed: **austenite**. Austenite is not stable at room temperature, but once the steel is heated hot enough to completely transform to austenite (called “**austenitizing**”), it can be cooled in different ways to achieve a variety of different microstructures and properties.

Depending on how quickly or how slowly the steel is cooled will affect how much the carbon can migrate when the steel tries to return to the ferrite and cementite phases. Time is an important factor because the austenite phase is not stable once it cools below a certain point, so once a piece of steel is taken out of the furnace, the clock starts ticking.

The transformations can be plotted on a temperature versus time (logarithmic) plot to form a “TTT diagram” (“TTT” stands for “time, temperature, transformation”). It should be noted that each steel composition will have a different TTT diagram based on how the alloying elements affect how quickly the austenite reverts to ferrite and cementite. **Figure 2** is a generic TTT diagram for a carbon steel that is roughly 0.77% carbon.

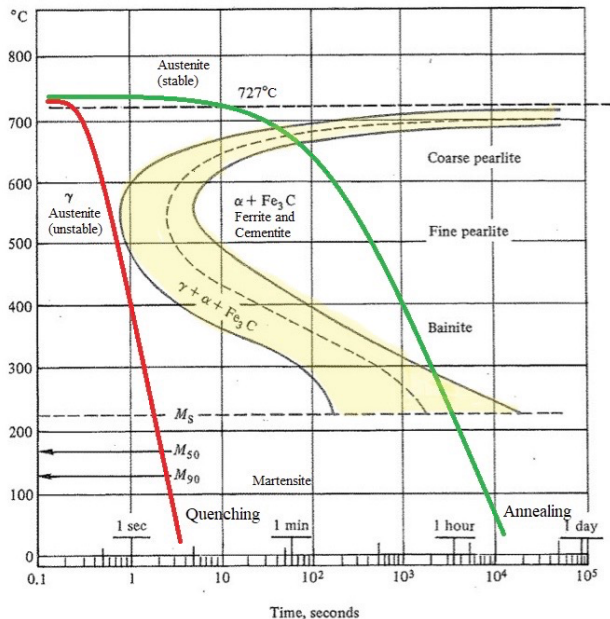


Figure 2: Generic TTT diagram with yellow shading to represent transformations from austenite and colored curves superimposed to represent heat treatments.

While the TTT diagram in **Figure 2** is relatively simple compared to diagrams for other steels, there are some things that require explanation. First, for this steel, the dashed line at 727°C represents the temperature above which austenite (Greek letter gamma γ) is stable (the “austenitizing temperature”). Below this line, austenite is no longer stable and begins to transform into ferrite (Greek letter alpha α) and cementite (Fe_3C). Depending on how quickly the steel is cooled after dropping below 727°C will determine which microstructures (pearlite, martensite, or bainite) form.

Pearlite, martensite, and bainite have different mechanical properties. Pearlite has relatively low strength and low hardness, but is fairly tough. Martensite has high strength and high hardness, but has low toughness. Bainite’s properties are somewhere in between. For the sake of clarity, strength, hardness, and toughness are defined as follows:

- **Strength:** ability to resist deformation when a force is applied.
- **Hardness:** ability to resist friction/wear.
- **Toughness:** ability to resist fracturing/breaking when a force is applied.

To transform austenite into pearlite or bainite, the steel has to cross through the yellow shaded region of **Figure 2**. The left side of this region marks where the unstable austenite begins to transform into ferrite and cementite. The right side of this region marks where essentially all of the austenite has transformed into ferrite and cementite. The dashed line in between represents where 50% of the austenite has been transformed. Once the steel “passes”

entirely through the yellow shaded region, the transformation process is essentially finished and it can be cooled to room temperature without much effect on the microstructure.

If the austenite is transformed through the yellow shaded region of **Figure 2** above ~500°C, a pearlite microstructure will form. If the austenite is transformed below ~500°C, a bainite microstructure will form. For this steel, it would be easy for pearlite to form by cooling it somewhat slowly. This could be accomplished by cooling along the green curve, which represents an **annealing** heat treatment where the steel is heated above 727°C and allowed to slowly cool with the furnace to room temperature.

For martensite to form, the steel must be cooled rapidly enough to avoid crossing into the yellow shaded region of **Figure 2**. This could be accomplished by rapidly cooling along the red curve, which represents **quenching** (“**hardening**”), generally in a liquid medium like water or oil.

To transform this particular steel into martensite, it would have to be cooled extremely quickly because at the “nose” of the yellow shaded region in **Figure 2**, the austenite will start to transform in less than 1 second around 550°C. Therefore, for the steel represented by this particular TTT diagram, it would be very difficult to completely transform all of the austenite to martensite. However, die steels used to make coin dies include other alloying elements that shift the yellow region further to the right and allow a little more time to get past the “nose.” This makes it possible to quench them and successfully achieve a martensite microstructure.

Examples of austenite, pearlite, martensite, and bainite microstructures can be seen in **Figure 3**.

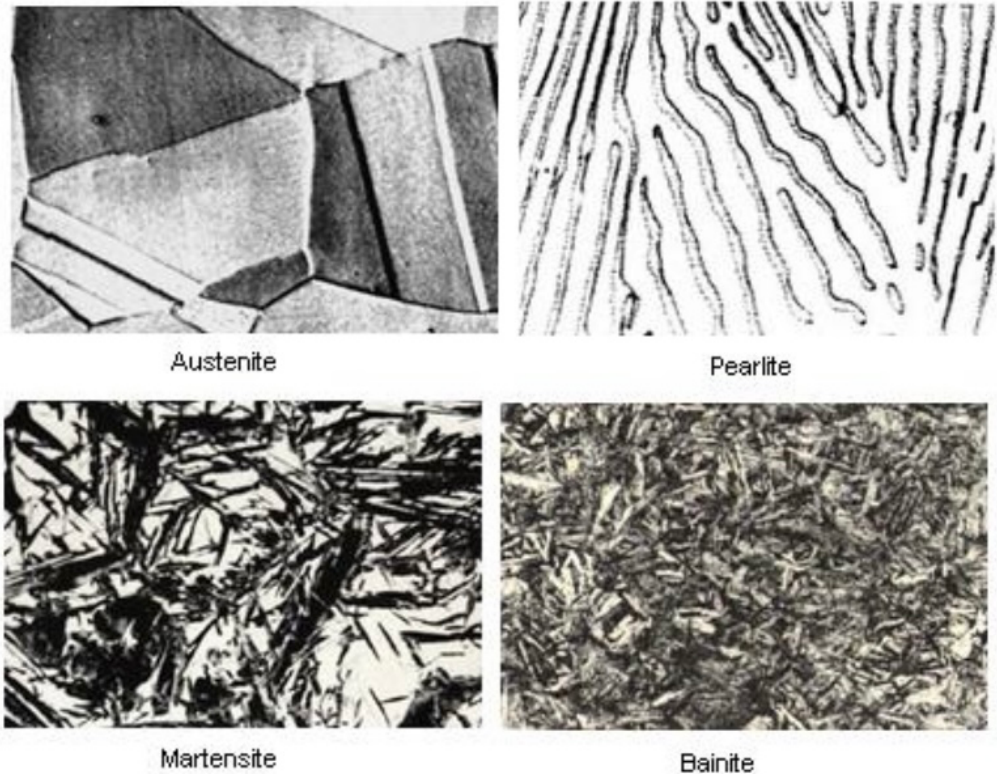


Figure 3: Comparison of various steel microstructures. Image is from metallurgyfordummies.com.

Circling back to how dies are heat treated, dies can be rapidly cooled (quenching) or slowly cooled (annealing) after being heated above the austenitizing temperature. If the engraver wants to engrave a die, they would need to **anneal** the die to reduce the hardness and make it easier to work with. Once the engraver is finished with preparing the die, they would need to austenitize and then **quench**

the die to develop the necessary strength and hardness. However, as mentioned previously, the martensite produced by quenching has low toughness, meaning it would be very susceptible to cracking and breaking apart (either due to striking coins or internal stresses). Since this is a very undesirable characteristic for a coin die, an additional heat treatment after quenching is needed: **tempering**.

For **tempering**, the steel is heated well below the austenitizing temperature, held at that temperature, and then cooled. In martensite, the iron and carbon atoms are arranged in a very strained manner (causing internal stresses), and tempering allows for the atoms to move into less-strained configurations. Tempering reduces the hardness and strength, but it increases the toughness. Generally the hotter the tempering temperature, the more negatively impacted strength and hardness become. Since coin dies need to be fairly strong and hard, they would probably be tempered at a lower temperature, with the understanding that their toughness may not be particularly great.

So, to sum it all up, a coin die would generally be subjected to the following heat treatments:

- **Annealing** to soften the die prior to engraving.
- **Quenching** to harden the die after the engraving was completed.
- **Tempering** to improve toughness without sacrificing too much strength and hardness.

The effort that goes into heat treating a die was probably an important factor in the early days of the U.S. Mint when it came to deciding whether to overdate an outdated die or just use the die as-is. If the die hadn't been quenched/tempered yet, it would be fairly easy to overdate the die. However, once the die was quenched/tempered, it would be much more challenging to overdate the die. Overdating a previously quenched/tempered die would require

an annealing heat treatment to make the die easier to work with, followed by another quench and temper after the die was overdated. Since re-heat treating the die could lead to cracking during heat treatment, it would generally not be worth the risk to try to overdate a die that had previously been quenched/tempered.

This is likely why there are very few early U.S. coin dies that were overdated after being quenched/tempered and used to make coins. Out of roughly 65 pre-1838 overdated half dime, dime, quarter, half dollar, dollar, quarter eagle, half eagle, and eagle dies, only the following dies were previously quenched/tempered to strike coins prior to being overdated (and therefore would have required another round of heat treatment):

- 1806/5 quarter obverse die
- 1806/5 half dollar (O-104) obverse die
- 1806/5 quarter eagle obverse die
- 1827/3/2 quarter obverse die

Hopefully this brief primer on heat treatments will instill a greater appreciation of what the U.S. Mint had to contend with (and to an extent, still contends with) during the process of preparing coin dies. For comments or questions, feel free to contact me at npottschmidt@hotmail.com.

HOUCK'S PANACEA

By Jeffrey Oertel

This is the accurate story behind Houck's Panacea. Many seasoned researchers know that not everything in print is accurate. Sometimes an erroneous bit of information is put in writing, then repeated and eventually it becomes an accepted fact. Such is the case with the story behind the Houck's Panacea counterstamp.

The Houck's Panacea stamp is certainly one of the most popular counterstamps yet far from the rarest. There are likely well

over one hundred known stamped coins with most of these being half dollars. There may be fewer than ten stamps on early dollars, of which there are at least two stamps found on flowing hair dollars.¹

Half dollars dating from 1829 to 1836 comprise most of the stamped coins, therefore capped bust type half dollars. There are a few draped bust halves with the stamp.² There are at least six early quarters known to have the stamp.

In addition to the United States coins, the stamp is found on France 5 Francs, Mexico/Spanish 1 and 2 Reales, Brazilian 960 Reis and a Prussian Taler. If a counterstamped coin issued after 1836 is found, such as a Seated Liberty coin, it would be a rare use of the stamp. To be sure, Houck did not waste his stamp on such low denomination coins as large cents.

Virtually all coins but the early dollars and foreign coins have the stamp in the same location, vertically situated in front of Liberty's face. Brunk indicates that





there are two varieties of the stamp, the common one as shown within this article and another with a serrated top. Only one is known to exist.³

The Houck's Panacea stamps, used for advertising, were most likely made just after Houck gained approval for his patent, which was in 1833.⁴

It is uncertain why Houck stopped stamping coins after 1836. Houck did continue to advertise in newspapers and flyers and did so through at least 1842. He also issued his own paper notes to advertise his product and location.

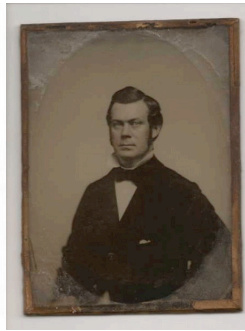
So, who was the person behind the special formula, the advertising and the stamp? This is where the erroneous information begins, and this seems to go back well over one hundred years. Note that the full names of the key people involved are used throughout to help avoid confusion and make clear the actual story.

Jacob Houck (no middle name used or found) was born in 1792 near Frederick City, Maryland. In 1811 he married Elizabeth Trisler and they raised a family of three boys.⁵ Jacob Houck was a merchant and had a "dry goods store and lab"





Mr. Jacob Houck Donor of Battle Creek.



Portrait of Jacob Houck likely made in the 1820s to the left, and a Jacob Wever Houck photograph possibly taken in the 1860s or 1870s, to the right.

in Baltimore for many years.⁶ Jacob Houck died in 1850.

His first son was named Henry T. Houck, born November 15, 1815. Henry did not achieve the same fame as his father or younger brother, Jacob Wever (or Weaver) Houck. It is also uncertain if Henry ever married.

Jacob Houck's next son was named Frederick, born on March 4, 1815. Although there is little record of his life, and it is unknown if he ever married, an 1870 Federal census indicates that he was a doctor.

Jacob Wever Houck was born on July 2, 1822, in Baltimore. There is no indication that father and son ever went by Sr and Jr. Jacob Wever Houck also became a doctor and a highly respected one at that. Jacob Wever Houck married Sarah Francis "Sudie" Porter in 1852. This family must have had some prominence with two doctors in the same family, and father a well-respected merchant. To be clear, however, the father, Jacob Houck, had never been associated with the medical profession.

The key point to be made here is that the stamp and panacea in question is not "Dr. Houck's Panacea," as noted in numerous articles and stories about the topic. It is simply "Houck's Panacea," created and sold by Jacob Houck, who was not a doctor. To be sure, there never was the use of Dr. Houck's Panacea on any of the advertisements, stamps and information issued at the time the family was making the panacea. Even an old portrait of Jacob Houck has a label on it that reads, "Mr. Jacob Houck Donor of Battle Creek" (although there are age-old articles that indicate his son, Jacob Wever Houck, donated the land.)

The patent for the panacea was certainly not applied for by a doctor in the family. Jacob Wever Houck was ten years old at the time, his brother Henry T. Houck all of seventeen. When all of the advertising, stamps and sales were made, these two young men were either in school or at the university, barely starting their medical careers.

Based on an 1850 Federal Census, while Jacob Wever and brother Henry T Houck were living in their mother's house, it is noted that Henry T. Houck was a "Panacea Maker." One can surmise that the panacea business started by the father, Jacob Houck, was carried on by Henry T. Houck.

There is no record of either of the two brother doctors being involved with the business. Jacob Wever Houck graduated from the University of Maryland in 1842. He was listed in numerous business directories under "physicians" between 1863 and 1888. He was a "successful practitioner since 1843 when he graduated from the Maryland school of medicine."⁷



It was also noted in his obituary that “his father Jacob Houck was for many years a leading merchant of Frederick City and also of Baltimore.” In 1848 Jacob Wever Houck was appointed to the Marine hospital for 2 years, then appointed Commissioner of Health in 1868. He was “physician to the jail” until 1881, when he went into private practice.⁸

In addition to their careers, the family had a history of military service. Jacob Hauck was in the Maryland Militia, Randle’s Battalion, in the War of 1812. Jacob Wever Houck was in the Maryland 1st Infantry during the civil war and was wounded in the leg at Cold Harbor in 1861. Jacob Wever Houck’s wife, Susannah (nee Porter), also came from a family with military service, including a grandfather



who was a lieutenant in the Maryland Regiment in 1777.⁹

Back to the misinformation but related to Jacob Houck's military involvement: in 1814 there was a battle that included militiaman Jacob Houck, the North Point Battle (also known as Battle Acre along North Point Road) which had occurred during the War of 1812 in Maryland.¹⁰ In 1839 an historically important acre of land was given to the State of Maryland by Jacob Houck for one dollar to help commemorate the site. This site was famous for the battle but also had a related structure called the Monument Hotel, which was owned by the Houck family. This building was known as "Houck's Pavilion."¹¹

In 1914 there was a special ceremony honoring the site which included a program, a band and the singing of the Star Spangled Banner. A cast iron plaque was presented. The special program was entitled, "Dedication of Dr. Houck's Half Acre."¹² This is despite the fact that the land was donated by Jacob Hauck, while the boys were still living at home with father Jacob and mother Elizabeth.

It was sometime in the late 1920s or early 1930s that a photograph was made which showed a group of canvas tents and a portable stage complete with a 5 piece band, all flanked by a pair of cars (painted with what is illegible advertising.) Printed at the bottom of the photograph is the line, "Doc Houcks Medicine Show." Of course this photo was taken long after the panacea was made and marketed. You can make out the name "Clark." Perhaps that is the name of the man in the middle of the picture holding a bottle, possibly Houck's Panacea.

It is fun to think that, during the later years of prohibition, Houck's Panacea was being sold to the public. Along with other minor ingredients, the formula for this medicinal product contained 25 pounds of Gum Guaiacum, 150 pounds of sugar and 25 gallons of rye whisky.

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1. I own the 1795 dollar illustrated. In addition, there is one more flowing hair dollar that I am aware of. I am aware of a handful of draped bust dollars and own several.
 2. Early quarter specialist, Glenn Marx, has recorded six examples.
 3. Brunk, Gregory B. "Merchant and Privately Countermarked Coins" 2003.
 4. US Patent #7574, issued on May 9, 1833, although applied for in 1831.
 5. Jacob Houck did not use or record a middle name. Note however that the name was sometimes recorded as Houk or Hauk. The year of his birthdate is found on his gravestone located in Mount Olivet Cemetery, Baltimore, MD.
 6. Maryland Census, various years.
 7. Baltimore Sun, obituary from April 1, 1850.
 8. United States Federal Census, various years.
 9. North American Family Histories, Lineage book of the Charter Members of the DAV Vol084.
 10. The Battle took place on September 12, 1814. The following day, British forces attacked the port city of Baltimore and British ships laid a 25 hour siege on Ft. McHenry, when Francis Scott Keys wrote the "Star Spangled Banner." Baltimore at the time was the nation's third largest city.
 11. Article by Allan Browne, "Dr. Houck's Acre," October 17, 2011.
 12. Maryland Historic Trust, Inventory for the State Historic Sites Survey, July 1977 (includes numerous references).



The Day I Stopped the Press

By W. David Perkins, NLG

At some point in time Russ Logan sent me a package. Included was an e-mail note exchange between Russ and I dated Wednesday April 21, 1999.

Subject: Re: Jules' Book

David:

Save all your notes, e-mails and correspondence on Jules' book in a safe place.

In fifteen years, they will make a great article!

Best.....Russ

"Jules' book" was THE UNITED STATES EARLY SILVER DOLLARS 1794 to 1803 published by Krause Publications (1999). This book was to take the place of Milferd H. Bolender's THE UNITED STATES EARLY SILVER DOLLARS from 1794 to 1803 which had been first published in 1950.

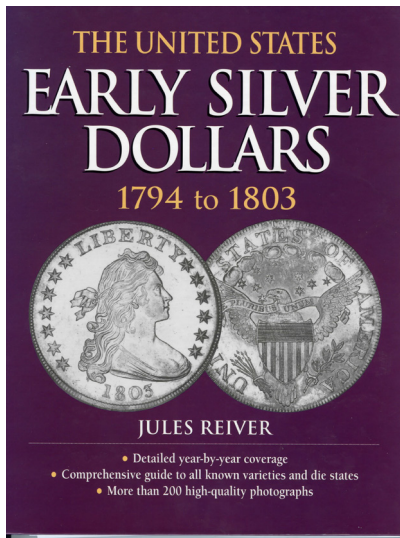
Sorry Russ, this article is about 8 years late but here is the story.

Jules had updated the Bolender silver dollar book over the years for Krause Publications, primarily with changes in the rarity ratings and the addition of any new early dollar die marriages. Krause and Jules were jointly working on a new book to be published under Jules' name.

Both Krause and Jules were pushing hard to get the book published as soon as possible. Jules took all the photos from coins in his collection of early dollars by die marriage and die state and sent them to Krause for publication in the book.

I was a contributor to the book but was not give a chance to review it before publication. I'm not sure if Jules was asked to review it either (?).

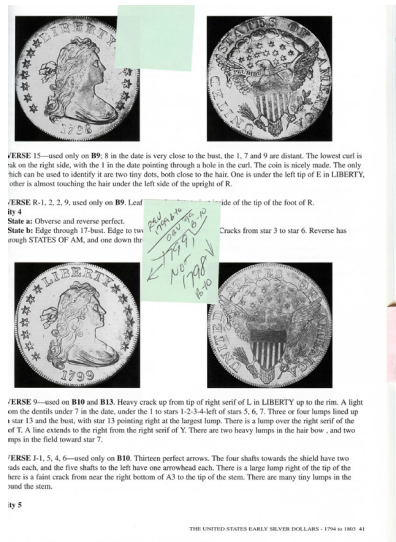
On March 3, 1999 I received a few copies of the book from the publisher. It didn't take long to realize there were MAJOR



The cover of the new Reiver Book. This book was intended to replace the Bolender Book for Krause Publications. There are two Printings, the first with plate and other errors.

PROBLEMS. I first spotted a 1799 B-10 Dollar mixed in with the 1798s. I quickly found other incorrect plate coins. I worked from home at the time and “took a little time off” that afternoon to go through the book and attributed every plate coin. According to my notes I found 20 incorrect plate photos.

I immediately notified the editor and suggested she may want to “Stop the Press!” In reality, it was a too late as boxes of the books had already been shipped to distributors. I learned this when our JRCS President and Editor called me and asked what was going on. He had received the books he’d ordered from his distributor who was asking for the books to be returned.



Page 41 from the first printing of the Reiver Book. The 1799 B-10 Dollar is clearly out of sequence and is surrounded by 1798s. This led to a few hours of attribution every plate coin looking for other errors. I found 20 plates in error that day.

The copies printed prior to the errors being discovered have the copyright listed as:

© 1999 by
Jules Reiver
Krause Publications

Much of March 1999 was spent correcting the plates and book. I sent a list of the errors and corrections and in April 1999 the corrected book was published and distributed. I have an original copy with errors and my correspondence with the Editor of the book.

The copies printed after the recall and corrections have “2nd Printing” added, as follows:

2nd Printing
© 1999 by
Jules Reiver
Krause Publications

The John Reich Collectors Society wants you!

To recruit one new member to our organization, copy this membership
or direct them to our new website, www.jrcs.org.

MEMBERSHIP APPLICATION



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Address _____ Email _____

_____ Date of Birth _____
(Month) (Date) (Year)

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The purpose of The John Reich Collectors Society ("JRCS") is to encourage the study of numismatics, particularly United States silver and gold coins minted before the introduction of the Seated Liberty design, and to provide technical and educational information concerning such coins. A member's name and address will not be included in any membership directory issued by JRCS or be disclosed to others without prior consent of such member.

Check the appropriate space below:

_____ Collector _____ Collector-Dealer _____ Dealer (Firm Name) _____

Indicate your area(s) of interest in Early United States Coins:

- | | |
|--|--|
| a _____ Flowing Hair Bust Half Dimes | h _____ Capped Bust Quarter Dollars |
| b _____ Draped Bust Half Dimes | i _____ Flowing Hair Bust Half Dollars |
| c _____ Capped Bust Half Dimes | j _____ Draped Bust Half Dollars |
| d _____ Draped Bust Small Eagle Dimes | k _____ Capped Bust Half Dollars |
| e _____ Draped Bust Heraldic Eagle Dimes | l _____ Flowing Hair Bust Dollars |
| f _____ Capped Bust Dimes | m _____ Draped Bust Dollars |
| g _____ Draped Bust Quarter Dollars | n _____ Gold Issues |

I hereby apply for membership in JRCS. As required by the By-Laws of JRCS I agree to pay promptly all my debts or other obligations to JRCS or any of its members. I enclose a check or money order for \$25.00 payable to "John Reich Collectors Society" for my annual membership contribution, or \$625.00 for a life membership in the Society.

Dated: _____
(Signature of applicant)

If applying for reinstatement, please give your former JRCS member # _____

Guarantee (if Applicant is under 21 years):

I guarantee payment by the Applicant of his/her debts or other obligations to JRCS or any of its members. I am 21 years or older.

(Signature of Guarantor)

Relation to Applicant _____

Sponsor's Statement:

I sponsor the above Applicant for membership in JRCS.
My JRCS member number is # _____

(Signature of Sponsor Member)

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